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SALIENT FACTOR SCORE VALIDATION- A 1972 RELEASE COHORT[1]

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ABSTRACT

In October 1973, the United States Board of Parole adopted an actuarial device, termed a "salient factor score", as a risk assessment aid. This device was constructed and initially validated on a sample of 1970 releasees utilizing a two year follow-up period for each case. However, as the utility of a predictive device depends upon its ability to predict to prospective samples, periodic validation is required. This paper describes the application of the salient factor score to a subsequent validation sample of prisoners released during 1972 and discusses the effects of using various outcome measures.

The actuarial device (salient factor score) presently used by the United States Board of Parole as a decision-making aid in assessing parole prognosis was adopted in October 1973. Containing nine items scoring to eleven points (Appendix I), this device was developed from a cohort sample of federal prisoners released in 1970. For research purposes, this sample was divided into construction (n=902) and validation (n=1581) subsamples. Construction and initial validation of this device have been described previously (Hoffman and Beck, 1974).

However, the purpose of any actuarial parole selection aid is to predict to *prospective* samples; thus, periodic validation is required. Recently, coding has been completed on a 1972 release cohort sample (n=1011) selected in the same manner as the 1970 sample.[2] That is, all cases released to the community during the first six months of 1972 (by parole, mandatory release, or expiration of sentence) whose prison identification numbers ended in selected digits were included.[3] As prison identification numbers are assigned sequentially, this is assumed to be the equivalent of random selection. Two-year follow-up from date of release for each case was obtained through the cooperation of the Federal Bureau of Investigation. Initially, a deck of computer cards containing identifying information for all sample cases was sent to the FBI National Crime Information Center (NCIC), which provided a 'rap sheet' printout for all cases

located in their computerized criminal history (CCH) system. Cases not located (matched) via this method had identifying information sent to the FBI Identification Division for manual pulling and forwarding of 'rap sheet' copies.[4] This represented somewhat of a change from the procedure used with the 1970 cohort follow-up. For the 1970 cohort, parole folders of all sample cases under parole or mandatory release supervision for all or part of the follow-up period were manually pulled for coding of outcome information and only those cases in which additional information was required (i.e., no indication of unfavorable outcome – subject under supervision for less than two years)[5] were sent for FBI follow-up information. At that time, the FBI's computerized criminal history system in an embryonic stage and this method was required to minimize the demand on FBI clerical staff time.

One problem with use of FBI 'rap sheets' as a data source is that there is not always adequate dispositional information.[6] Thus, as with the 1970 sample, a letter was sent to the arresting agency (and/or court) for each case in which an arrest without disposition was noted that might have affected case outcome classification.[7] All cases for which the status was unresolved as of July 25, 1975 (n=43) were classified – for purposes of this report – as having favorable outcome. Definitions of favorable/unfavorable outcome for the 1970 and 1972 release cohorts are shown in Table I. The difference between the definitions is minimal and for purposes of the following comparison may be safely ignored.[8]

TABLE I

OUTCOME CLASSIFICATION

	1970 Sample	1972 Sample
Favorable Outcome	No new conviction resulting in a sentence of sixty days or more; No absconder warrant outstanding; No return to prison for parole/ mandatory release violation; and No death during commission of a criminal act	No new commitment of sixty days or more; No absconder warrant outstanding; No return to prison for parole/ mandatory release violation; and No death during commission of a criminal act
Unfavorable	New conviction resulting in a sentence of sixty days or more* or Absconder warrant outstanding or Return to prison for parole/ mandatory release violation or Death during commission of a criminal act	New commitment of sixty days or more or Absconder warrant outstanding or Return to prison for parole/ mandatory release violation or Death during commission of a criminal act

*Including sentences to probation for sixty days or more, and sentences to confinement of sixty days or more which were suspended.

Findings and Discussion

Table 2 enables comparison between the 1970 and 1972 samples. The percentage of cases with favorable outcome for each salient factor score category is displayed for each of the three samples: the 1970 construction sample (Sample A); the 1970 validation sample (Sample B); and the 1972 validation sample (Sample C). It may be seen that the measure of predictive power calculated for the device (point biserial r) remained relatively stable over the three samples (r_A = 0.318, r_B = 0.277, r_C = 0.320). Thus, it appears that the salient factor score has retained predictive power for the 1972 release cohort.

TABLE 2

PERCENT FAVORABLE OUTCOME BY SCORE – COMPARISON OF THE 1972 AND 1970 SAMPLES

Sample A: 1970 Construction

Score	11	10	9	8	7	6	5	4	3	2	1	0	All Scores	Rpbis
Percent Favorable Outcome	100	91	93	79	83	72	62	60	58	40	44	–	67	0.318
N	19	43	53	82	77	107	122	146	134	85	34	0	902	

Sample B: 1970 Validation

Score	11	10	9	8	7	6	5	4	3	2	1	0	All Scores	Rpbis
Percent Favorable Outcome	100	95	84	84	78	76	71	66	61	50	53	25	71	0.277
N	41	94	92	131	159	169	225	246	200	158	62	4	1581	

Sample C: 1972 Validation

Score	11	10	9	8	7	6	5	4	3	2	1	0	All Scores	Rpbis
Percent Favorable Outcome	100	92	96	88	87	77	72	67	61	61	39	20	74	0.320
N	24	49	77	101	83	105	149	148	139	90	41	5	1011	

Data collected for the 1972 sample also provide an opportunity to examine the utilization of different criterion measures. Given the burden of proof required to obtain a criminal conviction and the effect of plea bargaining on sentencing, it could be argued that utilization of new arrest(s) as a criterion measure of unfavorable outcome would be more reflective of underlying criminal behavior than use of either new conviction or commitment. Thus, three criterion measures were selected for comparison. Criterion Measure X refers to the criterion measure for the 1972 release cohort noted in Table 1 above. Criterion Measure Y counts, in addition, any conviction – regardless of the sentence imposed – as indicative of unfavorable outcome. Criterion Measure Z counts, in addition, any arrest – regardless of disposition – as indicative of unfavorable outcome (see Table 3).[9] Criterion Measure X contains the most liberal definition of favorable outcome, Criterion Measure Y is less liberal, and Criterion Measure Z is the least liberal.

TABLE 3

OUTCOME CLASSIFICATION –
COMPARATIVE CRITERION MEASURES

	Criterion Measure Y	Criterion Measure Z
Favorable Outcome	No new conviction (other than for a petty offense)*; No return to prison for parole/ mandatory release violation; No outstanding absconder warrant; and No death during commission of a criminal act	No new arrest for criminal offense (other than a petty offense)*; No return to prison for parole/ mandatory release violation; No outstanding absconder warrant; and No death during commission of a criminal act
Unfavorable Outcome	New conviction (other than for a petty offense) or Return to prison for parole/ mandatory release violation or Outstanding absconder warrant or Death during commission of a criminal act	New arrest for criminal offense (other than a petty offense) or Return to prison for parole/ mandatory release violation or Outstanding absconder warrant or Death during commission of a criminal act

*The computerized criminal history (CCH) system excludes arrest(s) and conviction(s) for juvenile offenders as defined by state law (unless the juvenile is tried in court as an adult) and for petty offenses such as drunkenness, gambling, and vagrancy. Arrest and convictions for petty offenses were contained on the rap sheets obtained from the Identification Division, but were specifically excluded from consideration during coding.

Figure 1 displays the percentage of cases with favorable outcome in each salient factor score category for the 1972 sample using these criterion measures. The best fit (least squares) line for Criterion Measure X is the dashed line. The dotted line refers to Criterion Measure Y, while the solid line refers to Criterion Measure Z. As may be seen, the slope of the solid line for the arrest criterion (Criterion Measure Z) appears somewhat steeper than for either of the other criteria.[10] The point biserial correlation coefficient is also slightly higher for the arrest criterion (r = .342 for Criterion Measure Z, .330 for Criterion Measure Y, and .320 for Criterion Measure X). This would seem to indicate that the salient factor score has slightly greater power of discrimination in reference to the new arrest criterion than in reference to either the new conviction or new commitment criterion. Whether this is because the arrest criterion is more reflective of the actual incidence of criminal activity among the subjects of study, or whether it means that the salient factors merely do a better job of predicting police behavior (by identifying those the police are most likely to suspect) remains, of course, open to question. In terms of the rank order of outcome rate by score, the choice of criterion measure above would appear to make little difference. For those who wish to make inferences about the actual incidence of criminal behavior among the score groups, however, it is obvious that the choice of criterion will have considerably more impact,[11] particularly at the lower end of the scale.

FOOTNOTES

[1] Adapted from Report Eight, United States Board of Parole Research Unit, July 1975.

[2] For a description of the data collection, sampling, and coding procedures, see Hoffman and Beck (1974); also see Gottfredson and Singer (1973) and Singer and Gottfredson (1973).

[3] Short-term cases (sentence of one year and one day or less) and cases released to detainer or deportation warrants were excluded. Thirty-two other cases selected for this sample could not be located or contained insufficient file material and, thus, were also excluded.

[4] Identification Division 'rap sheets' and CCH printouts contain the same material with the exception that certain petty offenses (e.g., drunkenness, gambling, vagrancy) are specifically excluded from the CCH system (National Crime Information Center, 1974). To insure comparability, CCH coding rules were followed to exclude such offenses from consideration in those cases in which the identification 'rap sheets' provided the data base.

[5] Plus all cases released by expiration of sentence (i.e., without release supervision).

[6] For example, in 157 cases an arrest without disposition which might have affected the outcome code was noted. There were, in addition, a significant number of arrests without dispositions which did not affect the outcome code.

[7] The first letters were mailed March 6, 1975.

[8] There were twenty-six cases (approximately three percent of the total sample) receiving suspended sentences or probation, some of whom may have been classified as having favorable outcome using the 1972 criterion and unfavorable outcome using the 1970 criterion.

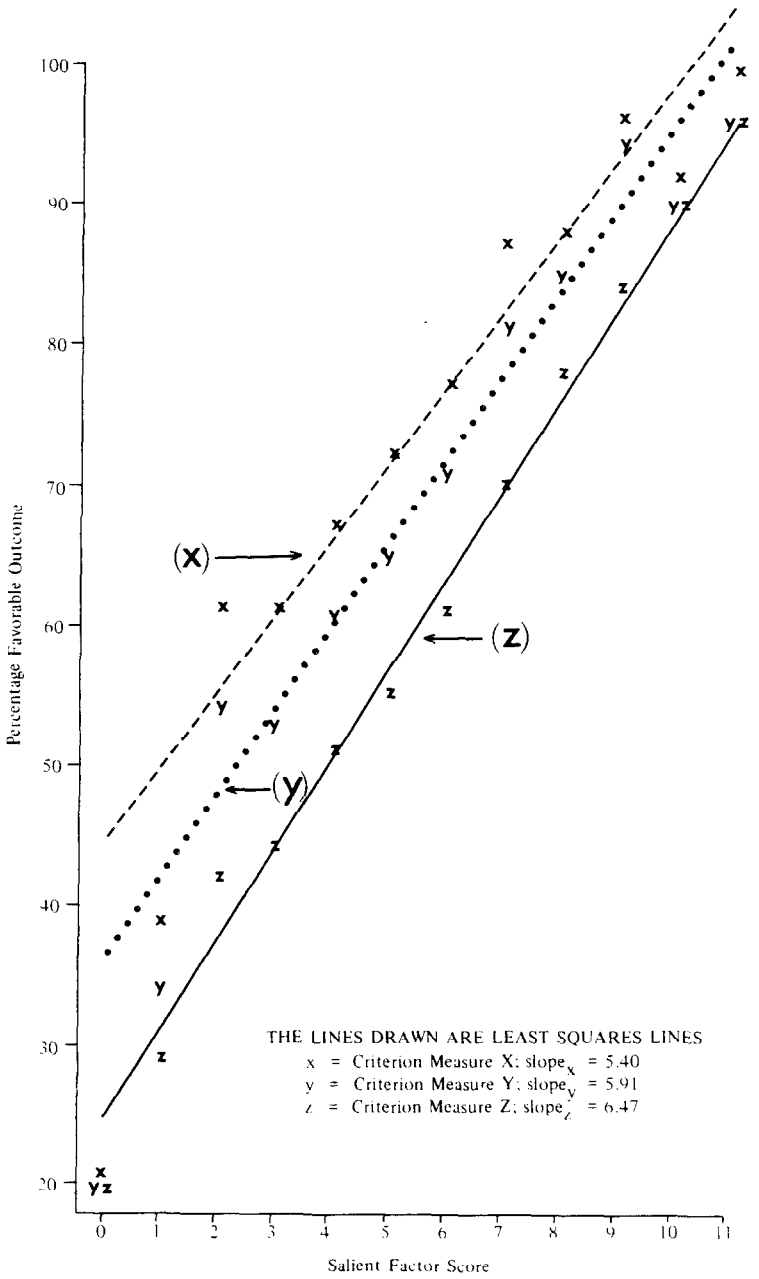
[9] As mentioned in footnote 4, supra, arrests and convictions for certain petty offenses have been excluded from consideration.

[10] The differences in slopes between Criterion Measure X, Criterion Measure Y, and Criterion Measure Z are statistically significant at the 0.001 level (X vs. Y: $t = 5.100$, $df = 2018$; Y vs. Z: $t = 5.333$, $df = 2018$; X vs. Z: $t = 10.190$, $df = 2018$) (McNemar, 1962:143).

[11] The overall favorable outcome rate is 74.0% for Criterion Measure X, 68.4% for Criterion Measure Y, and 59.5% for Criterion Measure Z.

FIGURE 1

PERCENT FAVORABLE OUTCOME BY SCORE
THREE CRITERION MEASURES



APPENDIX I

SALIENT FACTOR SCORE

Case Name _____ Register Number _____

Item A . . . . . ☐

No prior convictions (adult or juvenile) = 2
One or two prior convictions = 1
Three or more prior convictions = 0

Item B . . . . . ☐

No prior incarcerations (adult or juvenile) = 2
One or more prior incarcerations = 1
Three or more prior incarcerations = 0

Item C . . . . . ☐

Age at first commitment (adult or juvenile) 18 years or older = 1
Otherwise = 0

Item D . . . . . ☐

Commitment offense did not involve auto theft = 1
Otherwise = 0

Item E . . . . . ☐

Never had parole revoked or been committed for a new
offense while on parole = 1
Otherwise = 0

Item F . . . . . ☐

No history of heroin, cocaine, or barbiturate dependence = 1
Otherwise = 0

Item G . . . . . ☐

Has completed 12th grade or received GED = 1
Otherwise = 0

Item H . . . . . ☐

Verified employment (or full-time school attendance) for a total of at least
6 months during the last 2 years in the community = 1
Otherwise = 0

Item I . . . . . ☐

Release plan to live with spouse and/or children = 1
Otherwise = 0

Total Score . . . . . ☐

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